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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,298	12/07/2004	Takanori Fukushima	TSUZ 2 00019	4483

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EXAMINER	
VIJAYAKUMAR, KALLAMBELLA M	
ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
09/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,298	FUKUSHIMA ET AL.	
	Examiner	Art Unit	
	KALLAMBELLA VIJAYAKUMAR	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12* is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) ____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/29/2008 has been entered.

Claim-1 was amended, New claims 6-12 added. Claims 1-12 as amended are currently pending with the application.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chen et al (US 2003/0077515).

Chen et al disclose a gel comprising a dispersion of CNT in a polymer and electrolyte/solvent. The solvent comprised of ionic liquid such as mixed aluminum chloride and butylpyridinium chloride, 1-butyl-3-methyl imidazolium tetrafluoroborate/ hexafluorophosphate (Abstract, 0015,39,40; Clm 1, 7-9 and 16). The CNT were either SWNT or MWNT that are used after aqueous oxidation in acidic media or with out treatment (0038). The electrolyte can be a pure solvent that includes ionic liquids for negatively charged nanotubes, or electrolyte solution containing a salt with the formula MaXb for nanotubes without surface modification, combined with monomer or monomers (0040, 42-48). The nanotubes are electrostatically or physically entrapped in the film that is gelatinous (0049). The prior art further teaches forming a gel by suspending CNT in a monomer, wherein CNT should be anionic to remain in the suspension, and anionic treatment includes dispersing nanotubes in a solvent containing salt, and the solvent includes ionic liquids (0051). The instant claimed gel being capable of assuming a fluid state when an external force is applied per claims -1 and 8 will be inherent in the prior art gel because prior art composition is either same or substantially same as that claimed by the applicants, and Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Furthermore, the gel transforming to a fluid under shear forces is an inherent property of a gel. With regard to method in claims 3-4 and 9-10, the prior art teaches mixing the nanotubes and the electrolyte in making the composite, and the prior art composition is either same or substantially same as that obtained by the instant claimed process step. The prior art teaches forming a gelatinous layer containing the carbon nanotubes suspended in the electrolyte and polymer by using the mixing/ultrasonic (shear mixing) wherein the film over the substrate (coating) is in contact with the electrolyte. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Chen et al be insufficient to anticipate the instant claims, the instant claimed composition nonetheless would have been obvious to a person of ordinary skilled in the art over the disclosure because the reference teaches each of the claimed ingredients within the composition and structure. The burden is upon the applicant to prove otherwise. In re Fitzgerald, 619 F.2d 67, 205 USPQ594 (CCPA 1980).

2. Claims 5 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 2003/0077515).

The disclosure on the composition and method of making the composition as set forth in rejection-1 under 35 USC 102(e)/103(a) is here in incorporated.

The prior art further teaches forming a gelatinous layer containing the carbon nanotubes suspended in the electrolyte and polymer by using the mixing/ultrasonic (shear mixing) followed by forming a film over the substrate (coating) by the removal of the solvent by drying, and the removal of solvent by drying is well known in the art as shown by Debe et al (US 5,910,378) that discloses the solvents in the electrode/membrane assemblies can be removed either by washing with a solvent or by drying showing them to be equivalent process steps, and prima facie obvious over instant claimed method of using the composition. The coating of the layer/film obviously meets the limitation of instant claims.

Allowable Subject Matter

Claim 12 allowed.

The prior art of record neither teaches nor fairly suggest applicant's gel composition consisting of carbon nanotubes and ionic liquid that is a salt which assumes a molten state at or very near room temperature.

Response to Arguments

Applicant's arguments filed 05/29/2008 have been fully considered but they are not persuasive.

In response to the argument that Chen does not teach the characteristic of the gel (Res, Pg-5, Para-5; Pg-6, Para-1), the gels naturally liquefy under shear/external force, and there is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Schering Corp. v. Geneva Pharm. Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003)

In response to the argument that Chen teaches a composition containing polymer unlike the instant claims (Res, Pg-6, Para-2), the instant claim limitation of comprising does not preclude the addition of polymer and/or other components employed by Chen.

Applicant's argument that Chen does not disclose a gelatinous film containing carbon nanotube and ionic liquid (Res, Pg-7, Para-1) and the gel does not contain ionic liquid (Res, Pg-6; Para-1) has been addressed in detail in the rejection cited above, and furthermore Chen teaches all the elements of the gel and the film; and "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

In response to Chen makes no suggestion of applying force after the film has been formed (Res, Pg-6, Para-5) that is not the limitation of the instant claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/
August 20, 2008.

/Stanley Silverman/

Supervisory Patent Examiner, Art Unit 1793